Power Opamp with Programmable Output Current

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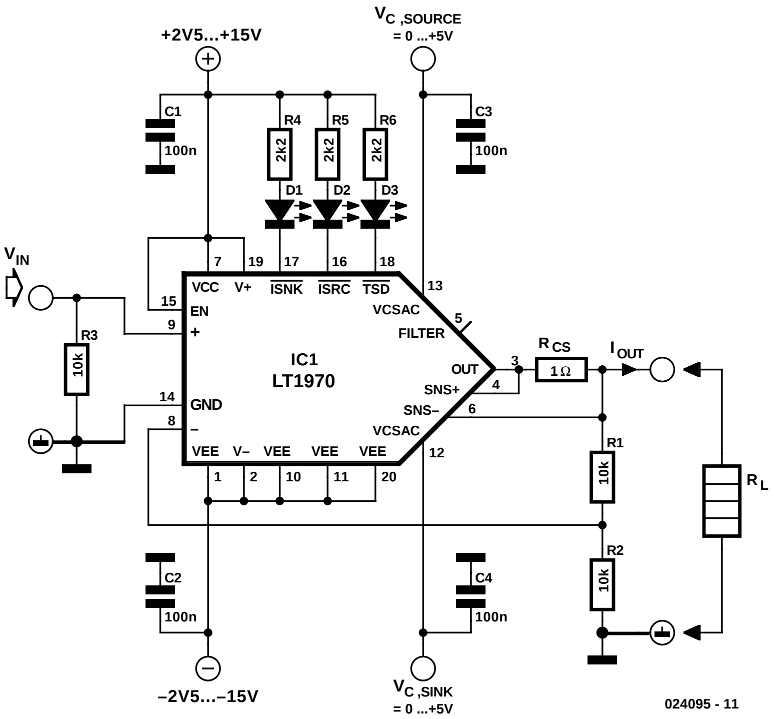

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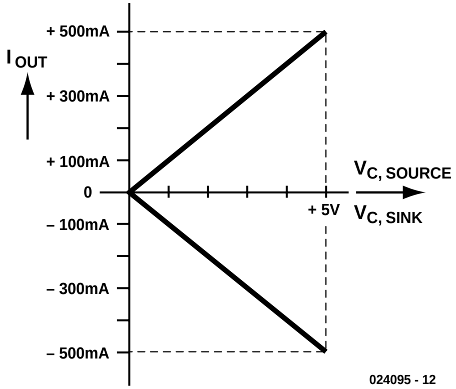

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The LT1970 from Linear Technology (www.linear-tech.com/pdf/1970f.pdf) is a power opamp with adjustable current limit, available in a 20 pin TSSOP package. As well as the usual opamp connections the component sports a range of extra pins for the current limiting feature. The first thing that catches the eye is the current sense resistor R_{CS}, set at 1 Ω. DC voltages V_{CSRC} and V_{CSNK} set the current limit value, for the two polarities separately: the maximum allowable current flowing from the positive supply through the output OUT and R_{CS} into the load is set via V_{CSRC}. On the other hand, the maximum allowable current flowing through the load, through R_{CS} and then to the negative supply, is set via V_{CSNK}.

The LT1970 can deliver up to ±500 mA and operates from supply voltages between ±2.5 V and ±15 V. It can also operate from a single supply in the range +5 V to +30 V. The maximum output current can be further increased using external driver transistors.

A further current limit at ±800 mA protects the device, and there is also a thermal protection circuit. Open collector outputs indicate operation of the thermal cutout and when the current limits set via V_{CSRC} and V_{CSNK} are reached. Here the outputs are connected to LEDs.

An enable connection (EN) allows the opamp to be powered down, leaving the output in a high-impedance state.

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